

## **REMARKS**

Claims 6-10 and 13-17 are pending.

### **Claim Rejection -- 35 U.S.C. 112, First Paragraph**

Claims 7 and 14 were rejected as non-enabled. Applicants respectfully traverse the rejection.

The Advisory Action argues that Figure 3(a) does not provide enough detail to determine the amount of the dopants to be used for achieving a ferromagnetic transition temperature of between 380 to 950 °C because Fig. 3(a) does not present any markings on the horizontal axis between x of 25 at% and 50 at%. Similarly, the Office Action argues that Fig. 4(a) and (b) does not allow a person skilled in the art to determine the amount of the dopants to be used because the horizontal axes had no markings except at x equaled to 0.15 and 0.25 (with no marking in between 0.15 and 0.25). Applicants respectfully disagree.

Applicants submit that Fig. 3(a), 4(a) and 4(b) do provide sufficient detail for a person skilled in the art to practice the claimed method of adjusting ferromagnetic characteristics, including ferromagnetic temperature. Even without additional markings on the horizontal axes, Fig. 3(a), 4(a) and 4(b) show the relationship between the amounts of the dopants and the ferromagnetic transition temperature with enough precision given the degree of precision needed in this art. If the person skilled in the art wants to know the amounts of the dopants required to achieve a certain predetermined ferromagnetic transition temperature, the person can obtain the amounts via

interpolation from the graphs in Fig. 3(a), 4(a) or 4(b). Thus, claims 7 and 14 should not have been rejected as non-enabled. Withdrawal of the non-enablement rejection is requested.

Claim Rejections -- 35 U.S.C. 102

Claim 6 was rejected as anticipated by Hager, Dausch, or Miyazaki. Claims 6 and 8-10 were rejected as anticipated by Pfrommer et al. Applicants respectfully traverse the rejections.

Applicants emphasize that **none of the prior art cited references relied upon in the rejections discloses any ZnO single crystalline film, so that no ferromagnetic characteristics can be exhibited even when any dopant is added.**

Applicants also would like to emphasize that the instant claims are drawn to methods of adjusting the ferromagnetic characteristics wherein the amounts or composition of the dopants are **controlled**, not merely **added** as alleged by the Office Action. Due to these deficiencies of the cited prior art references, the art rejections should not have been made.

In relation to Miyazaki et al, applicants contend that Miyazaki et al fails to teach a single crystalline ZnO film because a single crystalline film will not form unless the substrate is also single crystalline. It is well known in the semiconductor art that a single crystalline film will not form if it is not on a single crystalline substrate. The ZnO film of Miyazaki et al was a poly-crystalline film, which exhibited no ferromagnetic characteristics.

The Advisory Action states that Miyazaki et al. teaches a doped ZnO film having a single crystalline phase and is thus single crystalline. However, a careful review of the teachings of Miyazaki by applicants revealed that Miyazaki et al does not mention "single crystalline." Miyazaki et al uses the word, "crystallite" (see column 6, lines 46, 47, 52 and 54; column 7, lines 25, 26, 30, 35, 37 and 40; column 8, lines 54 and 60), but "crystallite" is not the same as "crystalline." As used by Miyazaki et al, "crystallite" designates a crystal particle (column 6, line 52), and it means a particulate and is completely different from "single crystalline." Miyazaki et al. neither indicates that the doped ZnO is a single crystalline nor discloses ferromagnetic characteristics. No ferromagnetic characteristic is manifested in the poly-crystalline film of Miyazaki et al in which lumps of single crystals are connected to form a film or granular state. Applicants emphasize that ferromagnetic characteristics are only manifested by single crystalline films with excellent crystallinity, not by poly-crystalline films.

Thus, the claims should not have been rejected as anticipated by the prior art cited.

The anticipatory rejections of claims 6 and 8-10 were also maintained mainly because the claims do not recite any specified or predetermined values of the ferromagnetic characteristics. However, applicants contend that the cited prior art fails to anticipate the claims. Merely because the claims do not recite any specified or predetermined values of the ferromagnetic characteristics does not mean that a person following the teachings of the prior art in making doped ZnO compounds would inherently practice the claimed method by inherently adjusting a ferromagnetic

characteristic. To **adjust** a ferromagnetic characteristic, the person **must have a preconceived notion of the value of the ferromagnetic characteristic that he or she wants to change to**. By simply making the doped ZnO compounds as taught by any of the cited prior art references, the person would not achieve a predetermined value of the ferromagnetic characteristic because the prior art was silent on any ferromagnetic characteristic and because the person following the teachings of the prior art would not have any predetermined value of the ferromagnetic characteristic in mind before he or she makes the doped ZnO compound. Without a preconceived notion of the value of the ferromagnetic characteristic to be achieved, the person would not be controlling the amount or composition of the dopant in order to adjust the ferromagnetic characteristic to reach a desired value. This is another reason why the claims should not have been rejected as anticipated over the cited prior art. The cited prior art fails to teach every limitation of the claims.

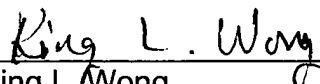
Withdrawal of the anticipatory rejections of claims 6 and 8-10 is requested.

#### In Conclusion

In view of the above reasoning, applicants believe that a Notice of Allowance is in order.

In the event this paper is not timely filed, Applicants hereby petition for an appropriate extension of time. The fee for this extension may be charged to our Deposit Account No. 01-2300, referring to client-matter number 107400-00016, along with any other fees which may be required with respect to this application.

Respectfully submitted,

  
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